

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
3 February 2005 (03.02.2005)

PCT

(10) International Publication Number
WO 2005/009285 A2

(51) International Patent Classification⁷: A61F

(21) International Application Number:
PCT/US2004/023211

(22) International Filing Date: 20 July 2004 (20.07.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/488,838 21 July 2003 (21.07.2003) US

(71) Applicant (for all designated States except US): THE TRUSTEES OF THE UNIVERSITY OF PENNSYLVANIA [US/US]; 3160 Chestnut Street, Suite 200, Philadelphia, PA 19104-6283 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): HERRMANN, Howard, C. [US/US]; 732 Great Springs Road, Bryn

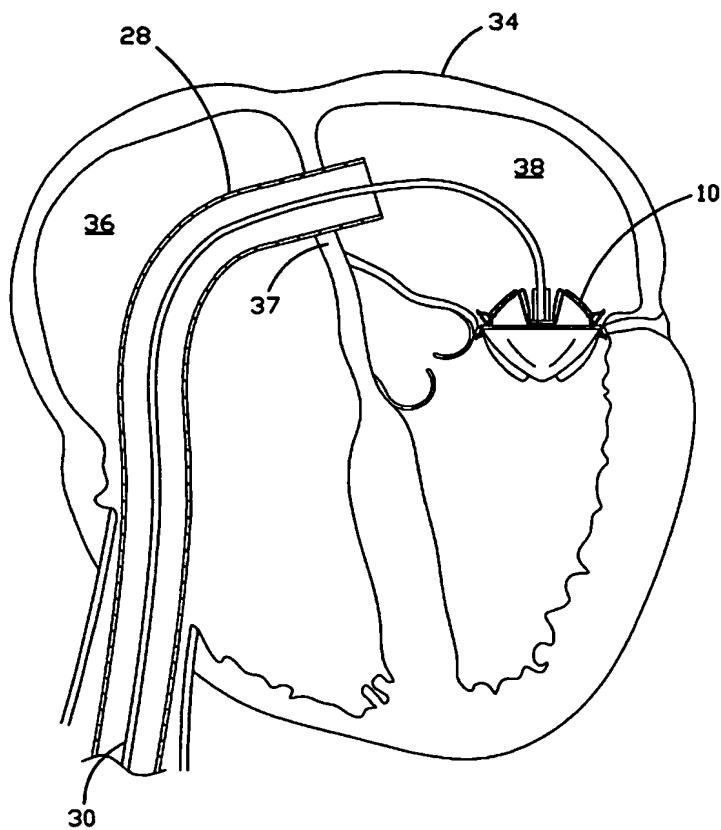
Mawr, PA 19010 (US). MANKAME, Niles [IN/US]; 8220 Denwood Drive, Apt. #74, Sterling Heights, MI 48312 (US). ANANTHASURESH, Suresh, G., K. [IN/US]; 3503 Honey Locust Drive, Phoenixville, PA 19460 (US).

(74) Agents: CALDWELL, John, W. et al.; Woodcock Washburn LPP, One Liberty Place - 46th floor, Philadelphia, PA 19103 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

[Continued on next page]

(54) Title: PERCUTANEOUS HEART VALVE



(57) Abstract: A percutaneously inserted bistable heart valve prosthesis is folded inside a catheter for transseptal delivery to the patient's heart for implantation. The heart valve has an annular ring, a body member having a plurality of legs, each leg connecting at one end to the annular ring, claws that are adjustable from a first position to a second position by application of external force so as to allow ingress of surrounding heart tissue into the claws in the second position, and leaflet membranes connected to the annular ring, the body member and/or the legs, the leaflet membranes having a first position for blocking blood flow therethrough and a second position for allowing blood flow therethrough. The heart valve is designed such that upon removal of the external force the claws elastically revert to the first position so as to grip the heart tissue positioned within the claws, thereby holding the heart valve in place. The body member and claws may be integrated into a one-piece design. The heart valve may be used as a prosthesis for the mitral valve, aortic valve, pulmonary valve, or tricuspid valve by adapting the annular ring to fit in a respective mitral, aortic, pulmonary, or tricuspid valve opening of the heart.

WO 2005/009285 A2



(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SI, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.